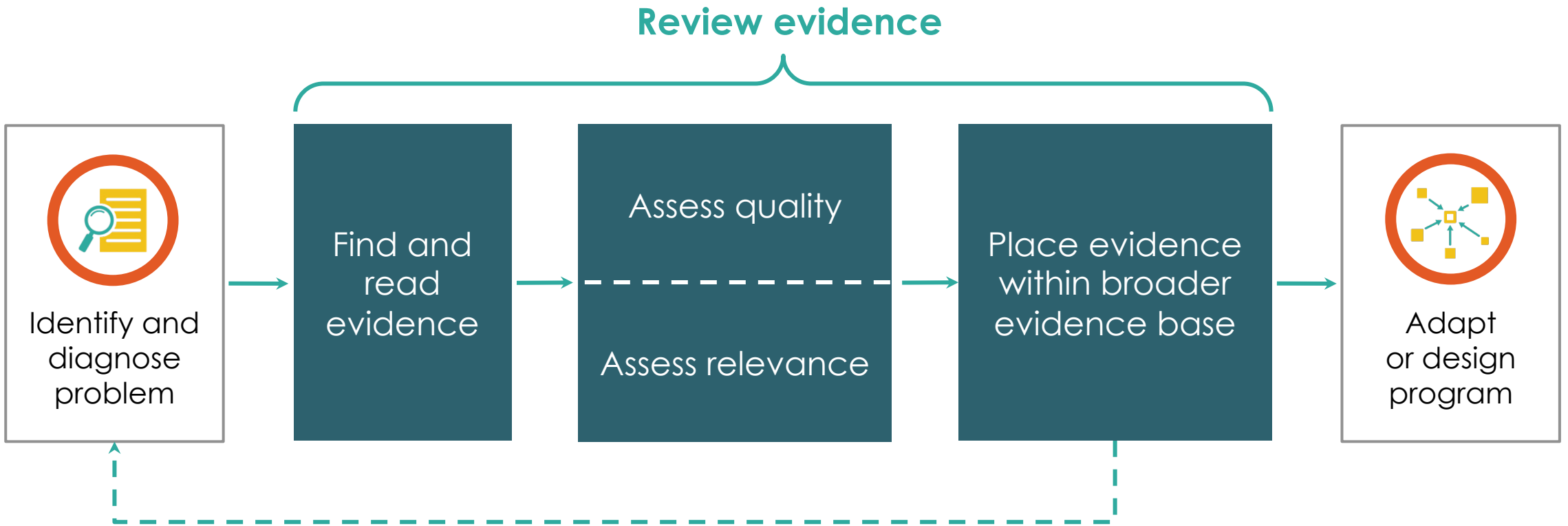
J-PAL
ABDUL LATIF JAMEEL POVERTY ACTION LAB

The Generalizability Framework

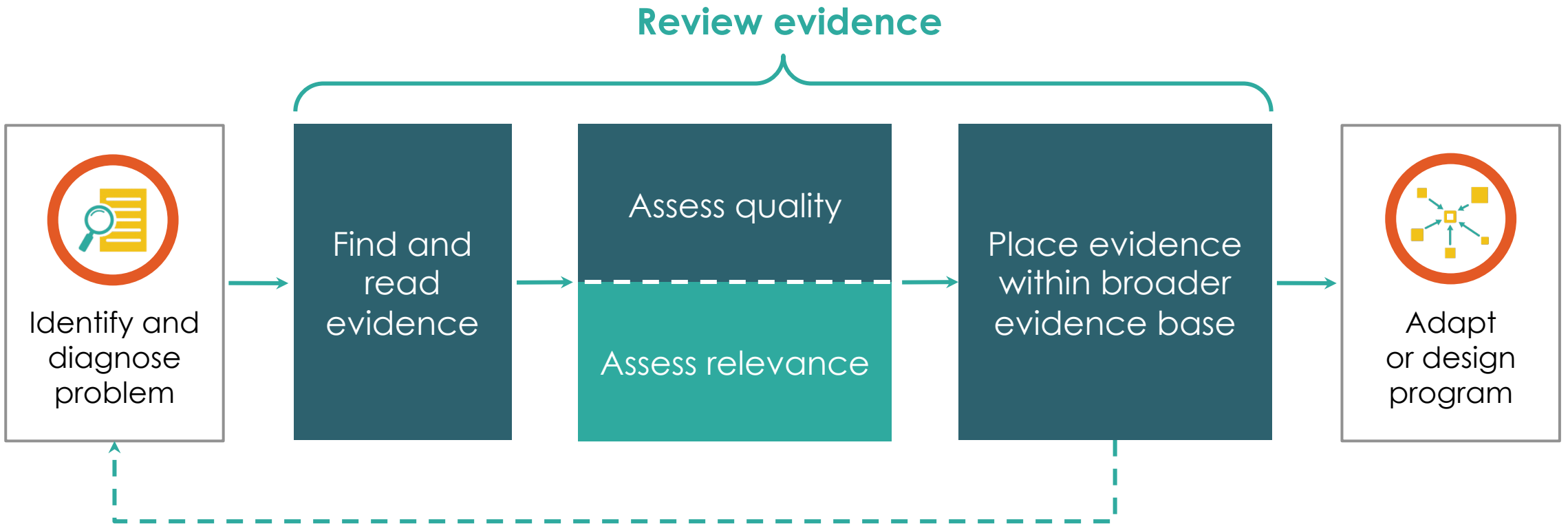
Course Overview

1. Why Evaluate
2. Theory of Change & Measurement
3. Why & When to Randomize
4. How to Randomize
5. Sample Size & Power
6. Ethical Considerations for Randomized Evaluations
7. Threats & Analysis
8. Randomized Evaluation from Start to Finish
9. Applying & Using Evidence
10. The Generalizability Framework

Last lecture: Evidence reviews include multiple steps



This lecture: How do we assess the relevance of evidence?



Have you ever learned about a program and wondered whether that program would be effective in your context?

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Home > Mexico > Mexico DF > Mexico City > Search results

Search

Destination/property name:

Mexico City

Check-in date

Check-in Date

Check-out date

Check-out Date

2 adults · 0 children · 1 room

Entire homes & apartments

I'm traveling for work

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Filter by:

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- View 735
- Bed and Breakfasts 42
- Apartments 1207

Sustainability

- Travel Sustainable properties 550
  Properties taking steps to make your stay more sustainable

Mexico City: 2,016 properties found

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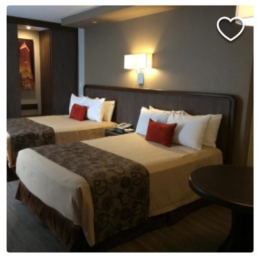
Sort by: Our Top Picks



Hotel Metropol

Mexico City Historic Center, Mexico City · Show on map

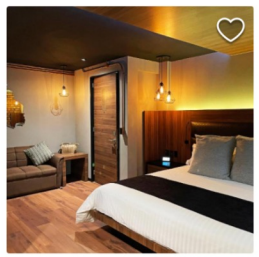
0.8 miles from center · Subway Access

Travel Sustainable property

In the heart of vibrant Mexico City, on the tree-lined avenue of Luis Moya and just one block from the Palace of Fine Arts, this elegant hotel offers on-site dining.

Very Good 3,778 reviews 8.4

Show prices



Cadillac Hotel Boutique

Mexico City Historic Center, Mexico City · Show on map

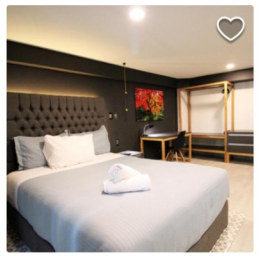
0.6 miles from center · Subway Access

Travel Sustainable property

Located in Mexico City, a 19-minute walk from Museo de Arte Popular, Cadillac Hotel Boutique has accommodations with free bikes, free private parking, a terrace and a restaurant.

Very Good 1,621 reviews 8.0

Show prices



Casa Romita

Roma, Mexico City · Show on map · 2.3 miles from center · Subway Access

Travel Sustainable property

Located in Mexico City, near The Angel of Independence, Chapultepec Castle and United States Embassy, Casa Romita features free WiFi, and guests can enjoy a terrace.

Very Good 644 reviews 8.3

Location 9.3

Show prices

8.4 Very Good 3,778 reviews We aim for 100% real reviews

Write a review

Categories:

Staff	8.6	Facilities	8.2	Cleanliness	8.5
Comfort	8.4	Value for money	8.3	Location	9.2

Filters

Reviewers: Families (1661)

- All (3778)
- Families(1661)
- Couples(880)
- Groups of friends(196)
- Solo travelers(718)
- Business travelers(623)

Review scores: All (3778)

Languages: All (3778)

Time of year: All (3778)

Bed + Clean + Restaurant + Show more

Sort reviews by: Most relevant

Reviewers' choice Reviewed: September 19, 2022

Exceptional 10

· Very good location and was very clean! Friendly staff always willing to help!

7 nights · September 2022

Family

4 people found this review helpful. Helpful Not helpful

Learning objectives

- Introduce a **systematic framework** for determining whether and how a program is likely to work in a new context – "**The Generalizability Framework**"
- Go through **examples** of how to apply the generalizability framework
- **Interactive session**!

We keep running into the same problem from place to place to place. … The solutions, in a sense, can be the same. You learn something general, and from this general finding, you can extract a lesson that policymakers will then tailor to each individual context."

—**Esther Duflo**, Interview after the announcement of the 2019 Prize in Economic Sciences https://bit.ly/2WI37Bk

Illustration: Niklas Elmehed

The existing body of evidence is very rich: J-PAL researchers alone have completed 1,600+ evaluations in 90+ countries

This session: How we can leverage the existing evidence base to ensure that we don't reinvent the wheel every time we run into a similar problem.

Outline

I. **Introducing the Generalizability Framework**

II. Example I: Immunization

III. Example II: Teaching at the Right Level (appendix)

Some common questions when reviewing evidence

Can a study inform policy only in the location it was undertaken?

Should we only use evidence from our location?

What counts as a "similar enough" new setting?

Must a program be replicated several times before scale?

Luckily the answer to most of these questions is "no"; it is very unlikely that you find a rigorous evaluation of a relevant program in exactly same location and under the same conditions – but you can still extract lessons from other research in different settings.

Shifting which questions we ask about evaluations

Instead of asking…

Are the **locations** similar?

How many times has the program been evaluated?

Think about…

Is the **problem** and its **underlying causes** similar?

Why did the program work? And what is the strength of the evidence on the **general behavior change**?

Generalizability framework

Step 1: What needs does the program address and what is the disaggregated theory behind the program?

Step 2: Are the local needs similar, and do the local conditions hold for that theory of change to apply?

Step 3: How strong is the evidence for the required general behavioral change?

Step 4: What is the evidence that the implementation process can be carried out well?

Generalizability framework

Step 1: What needs does the program address and what is the disaggregated theory behind the program?

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Key principles of the Generalizability Framework

- Instead of focusing on place and time, focus on **needs** and **behavior**
  - What are the **mechanisms** that made the program effective in addressing those needs/shifting behavior
- Evidence from a single study just **one part of the puzzle**
  - We weigh the evidence based on quality and adjust prior expectations
- Combine **theory**, **descriptive evidence**, and results of **rigorous impact evaluations** to answer:
  - Whether results from one context are likely to replicate in another
  - When we need more evaluation and when we do not

For more detail, see Mary Ann Bates and Rachel Glennerster, "The Generalizability Puzzle," *Stanford Social Innovation Review*, 2017.

Outline

I. Introducing the Generalizability Framework

II. Example I: Immunization

III. Example II: Teaching at the Right Level (appendix)

Imagine that you are a **program officer** in the government in country A in West Africa, and you are responsible for choosing/designing a program to increase the **immunization rates** of a life-saving vaccine.

Your mandate is for the program to be strongly backed by evidence but be adapted appropriately to your local context.

As part of your needs assessment, you want to consider:

What might be contributing factors to the low immunization rates in your context?

Possible contributing factors to low immunization rates

Lack of supply

- Lack of access to centers that provide immunizations
- Insufficient medical staff present at medical centers
- Lack of medical equipment/vaccines at clinics

Lack of demand

- Lack of information about value of immunizations
- Full immunization schedule not salient
- Norms against immunization
- Lack of trust in vaccinations
- Opportunity cost too high

The better you understand what are the key contributing factors as part of your needs assessment, the easier it will be to apply to generalizability framework

As part of your evidence review you come across this study, which you think sounds promising:

Evaluations | Policy Publications

Search our database of 1169 randomized evaluations conducted by our affiliates in 95 countries. To browse summaries of key policy recommendations from a subset of these evaluations, visit the Policy Publications tab.

Incentives for Milk Cleanliness and Production Quality in Indian Cooperatives

Ashish Shenoy, Manaswini Rao

The Effects of a Gender-based Violence (GBV) Curriculum on GBV and Education in Mozambique

Selim Gulesci, Sofia Amaral, Aixa Garcia-Ramos, Alejandra Ramos, Maria Micaela Sviatschi, Sarita Ore-Quispe

The Impact of Disclosing Soft Skills Certificates at Recruitment on Labor Market Outcomes in Uganda

Vittorio Bassi, Aisha Nansamba

Search Terms

immunization

Sector: All | Intervention Type: All | Country: All | Show all filters

Apply

Improving Immunization Rates Through Regular Camps and Incentives in India

Abhijit Banerjee, Esther Duflo, Rachel Glennerster, Dhruva Kothari

In rural Rajasthan, India, researchers evaluated whether improving access to vaccines via immunization camps could increase immunization rates, and whether additionally offering a non-financial incentive such as lentils could further increase rates. They found that providing incentives alongside...

Source: https://www.povertyactionlab.org/evaluations

Program to improve immunization rates in Rural Rajasthan through camps and incentives

Implementation of the program

Program implemented by a local NGO (Seva Mandir) to increase immunization rates in Udaipur, rural Rajasthan, India

Components of the program

1. **Reliable infrastructure:** regular monthly immunization camps with nurse present without fail (**supply**)
2. **Incentives:** 1kg lentils for every vaccination, set of plates on completed immunization schedule (**demand**)

Photo: J-PAL/IPA

A parent receives a kilogram of lentils at a vaccination clinic in Rajasthan, India

You can find the evaluation summary here.

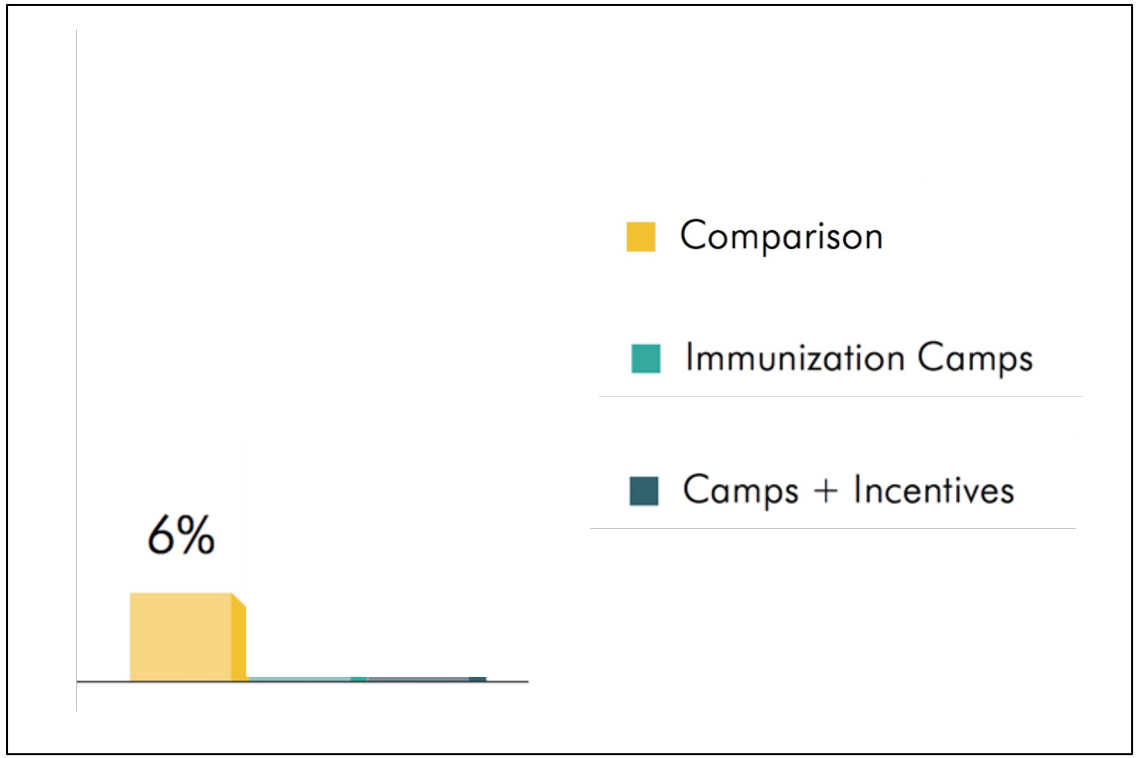
Effects of program to improve immunization rates in rural Rajasthan through camps and incentives

Evaluation and impact of the program

Impact evaluated with **large-scale RCT** (134 villages with almost 2,000 children):

- 30 villages received immunization camps
- 30 villages received immunization camps + incentives
- 74 villages was in the comparison group

Figure: Percentage of children aged 1-3 years who are fully immunized (i.e., five shots)



Should we consider rolling out incentives to improve immunization rates in country A in West Africa?

A. Yes
B. No
C. That's what I'd like to learn!

What would happen if we viewed this piece of evidence in isolation?

- Only one RCT, in South Asia not Africa
- Program conducted by NGO, not government
- Lentils not core part of typical diet in West Africa

How can we determine whether and how this intervention is likely to work in our context?

Reminder: Generalizability Framework

ESP WORKBOOK

Step 1: What needs does the program address and what is the disaggregated theory behind the program?

Step 2: Are the local needs similar, and do the local conditions hold for that theory of change to apply?

Step 3: How strong is the evidence for the required general behavioral change?

Step 4: What is the evidence that the implementation process can be carried out well?

Step 1: Program theory of change

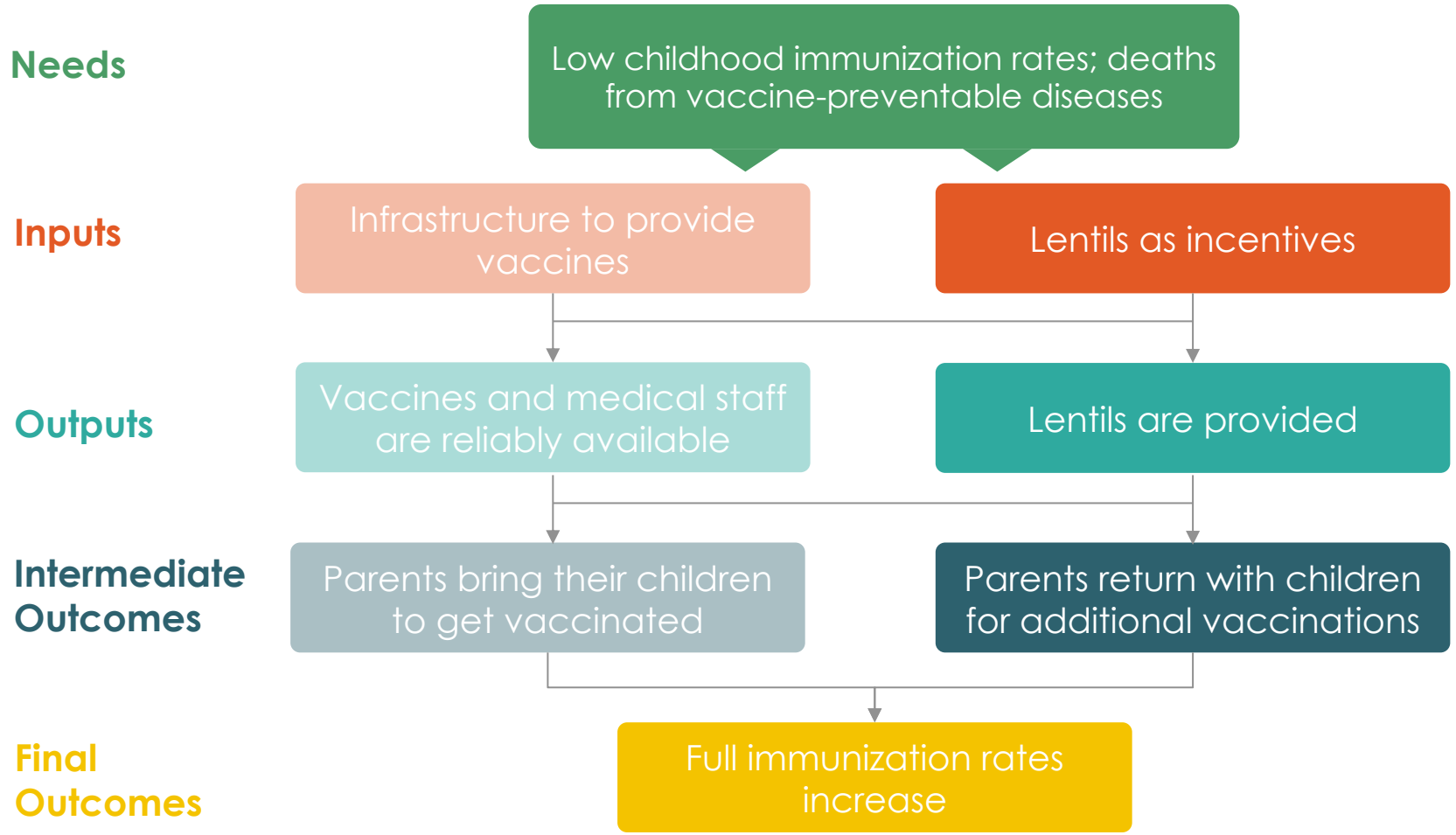
Step 1: What needs do the program address and what is the disaggregated theory behind the program?

Actions:

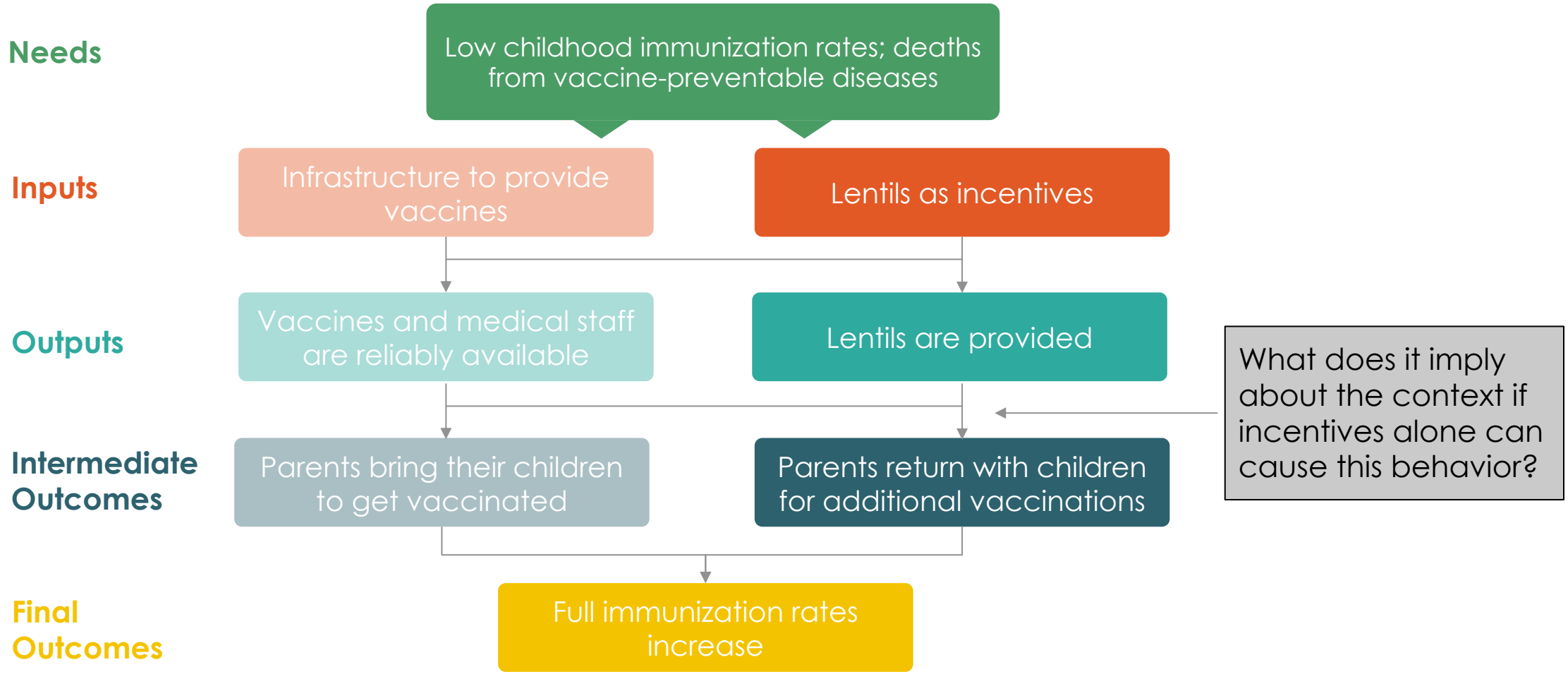
A. Understand the underlying need that the original study is trying to address and map the theory of change for the original program(s)

B. Articulate the key conditions that must have been in place for the program to have worked

Step 1.A: Understand the underlying **need** and map out **theory of change** for the evaluated program



Step 1.B: Key conditions that must have been in place for the program to have worked



Step 1.B: Key conditions that must have been in place for the program to have worked

Underlying conditions

- Parent want to vaccinate their children (e.g., no underlying norms against vaccinations or distrust in modern medicine)
- Parents are not hindered from vaccinating their children in ways that are not addressed in this program (e.g., lack of supply)
- Incentive schedule motivates parents sufficiently to get to the clinic

Step 2: Local conditions

Step 2: Are the local needs similar, and do the local conditions hold for that theory of change to apply?

Actions:

A. Find descriptive data to better understand whether the underlying need and the key conditions are also likely to be at play in your context

What data would you look for/collect to determine whether the need and the conditions also hold in your context?

Step 3: Generalized lessons on behavior

ESP WORKBOOK

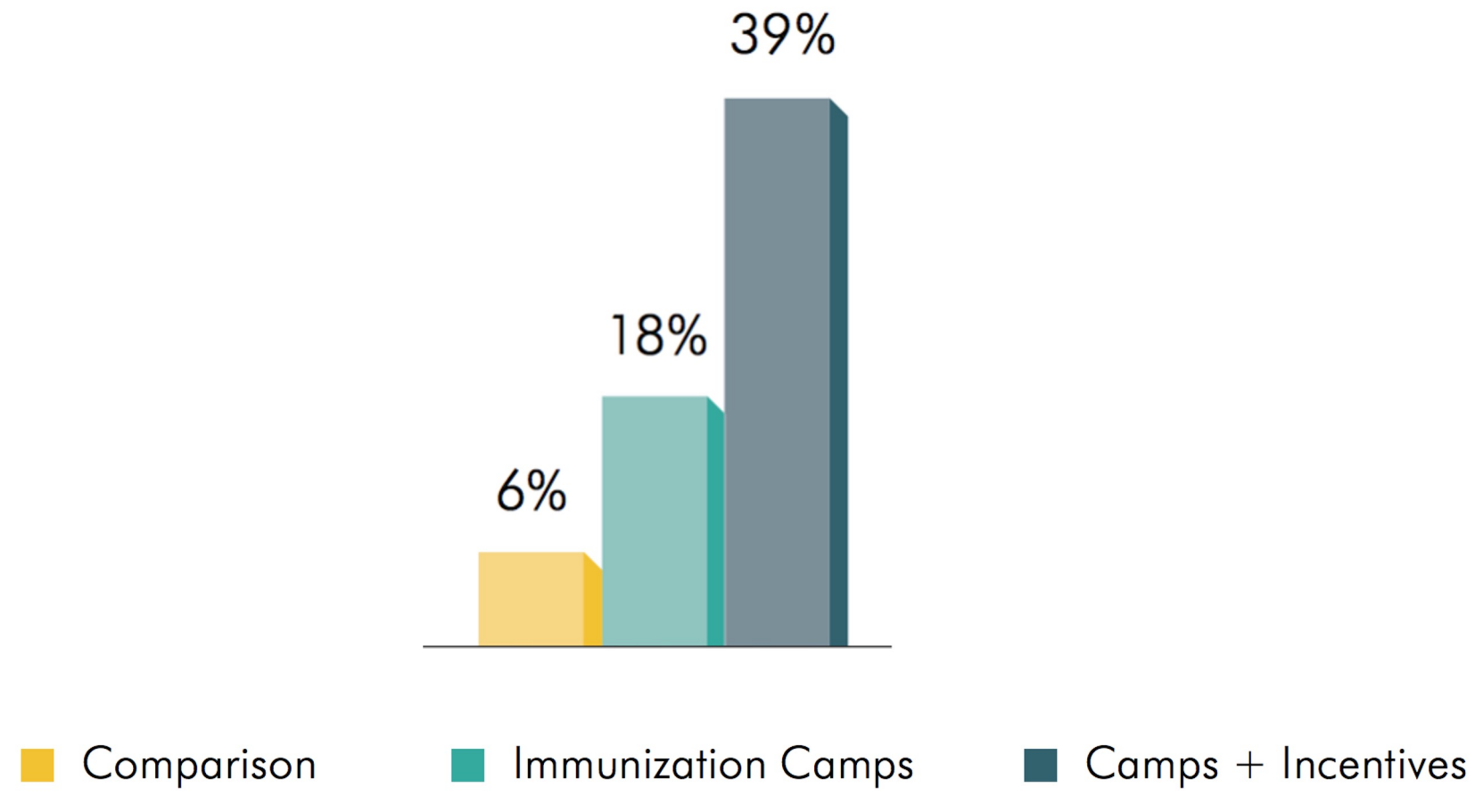
Step 3: How strong is the evidence for the required general behavioral change?

Actions:

A. Back out the behavioral mechanism through which the program worked in the original context(s)
B. Assess the strength of the evidence for that general behavior
C. Combine evidence base and data from local context to assess whether the mechanisms are likely to hold in your context

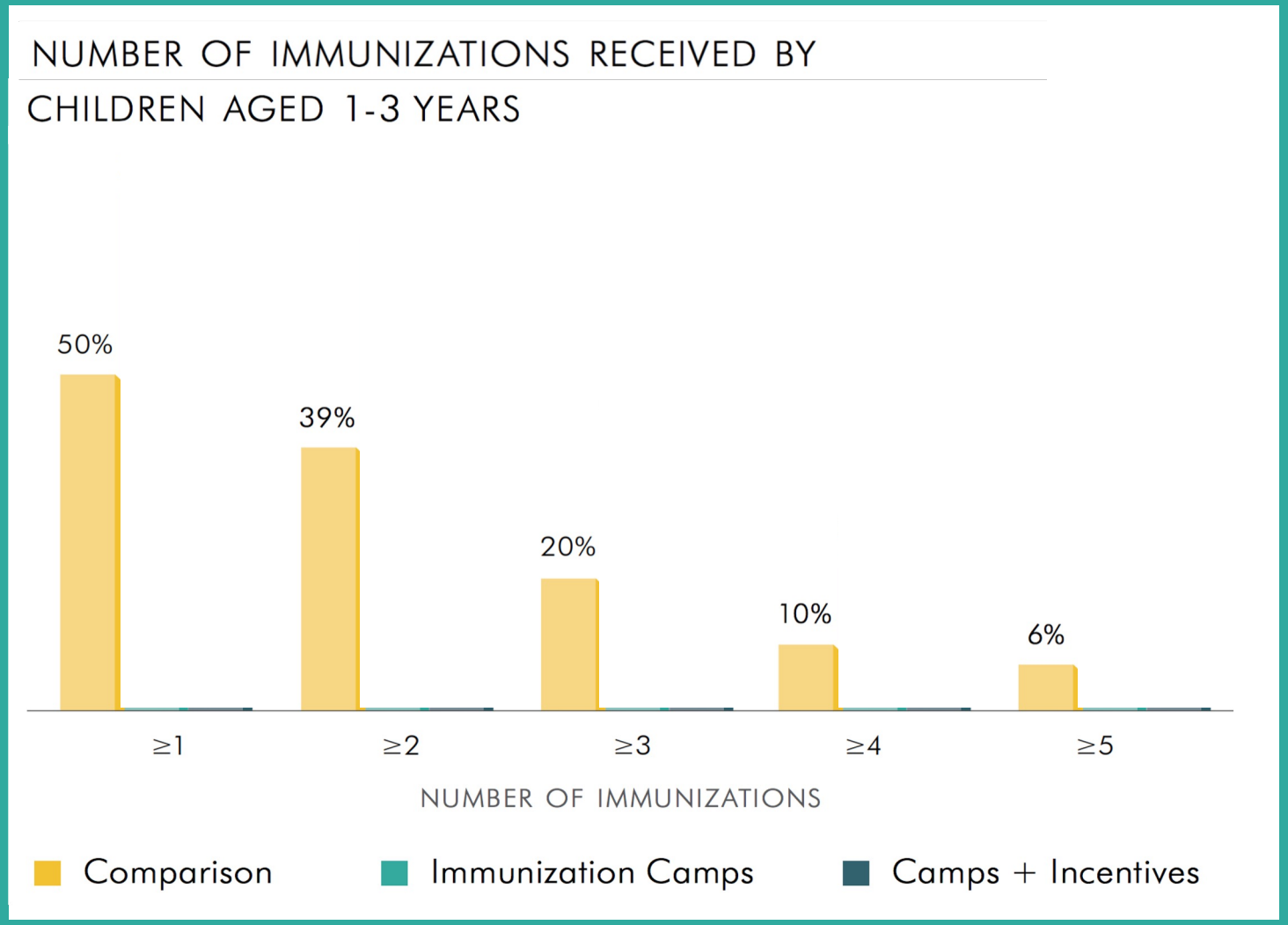
Step 3.A: Back out the behavioral mechanisms of the original study

Percentage of children aged 1-3 years who are fully immunized (i.e., five shots)



What can you learn about mechanisms from these descriptive statistics?

- Most parents want to vaccinate their children
- Lack of reliable supply was a barrier to getting the first doses
- Parents don't follow through or persist with the full immunization schedule despite availability
- Incentives help parents follow through



Step 3.A: Back out the mechanisms of the original context

Why did the original incentive program work?

Behavioral barrier: Parents don't follow through on the full vaccination schedule despite wanting to vaccinate their children

Mechanism: The incentives, albeit small, help parents overcome the hurdle to follow through

Step 3.B: Assess the strength of the evidence for the mechanisms that made the original program effective

Instead of asking…

What is the strength of the evidence to offer incentives to increase immunization rates?

Narrow!

Ask…

What is the strength of the evidence to offer incentives when people procrastinate/fail to follow through?

Expansive!

Have you ever experienced failure to follow through on something you believed was good for you?

If yes, have you ever experienced that a small incentive helped you follow through?

The vast evidence base of incentives to overcome failure to persist/follow through on desired behavior

- There is ample evidence that people **find it hard to persistent with desired behavior** they believe is good for them

- There is ample evidence that **even very small incentives can influence non-trivial decisions**, such as:
  - Encouraging HIV testing (Thornton 2008, Malawi)
  - Increasing take-up of flu vaccinations (Alsan et al. 2019, United States)
  - Combating diabetes (Aggarwal et al. 2020, India)
  - Preventing child marriage (Buchmann et al. 2021, Bangladesh)

- There is ample evidence that a **small decrease in the prices of preventative health products** can sharply increase take-up (15+ RCTs, see here)

Step 3.C: Combine evidence base and data from local context to assess whether the mechanism and key conditions are likely to hold in your context

If…	Then…
…the main barrier preventing parents from vaccinating their children is lack of follow through and/or high opportunity costs	…the incentive program's impact might generalize to your context if implemented with fidelity to the original program
…there are stiffer barriers at play, such as lack of access to health centers, strong norms against vaccinations, etc.	…the impacts of implementing incentives on vaccination rates are unlikely to generalize to your context

Thought experiment: Which of the two hypothetical countries might be a good fit for an incentives program?

Vaccination Schedule	Country 1 Rate	Country 2 Rate
1st vaccine	84%	47%
2nd vaccine	74%	41%
3rd vaccine	67%	41%
4th vaccine (full immunization)	49%	38%

Step 4: Local implementation

Step 4:

Assess whether you or another organization can successfully implement the intervention with fidelity to the original model.

What is needed for this intervention to be delivered with fidelity to the original model?

- Progressive in-kind incentives; big enough to be meaningful, small enough not to be coercive
- Reliable delivery of incentives and camps
- Trust in reliability of incentives and camps

Generalizability of immunizations for vaccinations

INCENTIVES FOR IMMUNIZATION PROGRAM

- Parents fail to follow through/ persist on desired behavior
- Incentives can help overcome barrier to follow through

LOCAL CONDITIONS

- Parents want to vaccinate children
- Parents can access a reliable clinic
- Full immunization schedule is salient
- No strong norms against vaccination

GENERALIZED LESSONS ON BEHAVIOR

LOCAL IMPLEMENTATION

- Meaningful in-kind incentive
- Reliable incentives and camps
- Trust in reliability

COMPLETED IMMUNIZATION RATES RISE

INCENTIVES FOR IMMUNIZATION PROGRAM

?

COMPLETED IMMUNIZATION RATES RISE

- Parents fail to follow through/ persist on desired behavior
- Incentives can help overcome barrier to follow through

INCENTIVES FOR IMMUNIZATION PROGRAM

LOCAL CONDITIONS

- Parents want to vaccinate children
- Parents can access a reliable clinic
- Full immunization schedule is salient
- No strong norms against vaccination

GENERALIZED LESSONS ON BEHAVIOR

LOCAL IMPLEMENTATION

- Meaningful in-kind incentive
- Reliable incentives and camps
- Trust in reliability

COMPLETED IMMUNIZATION RATES RISE

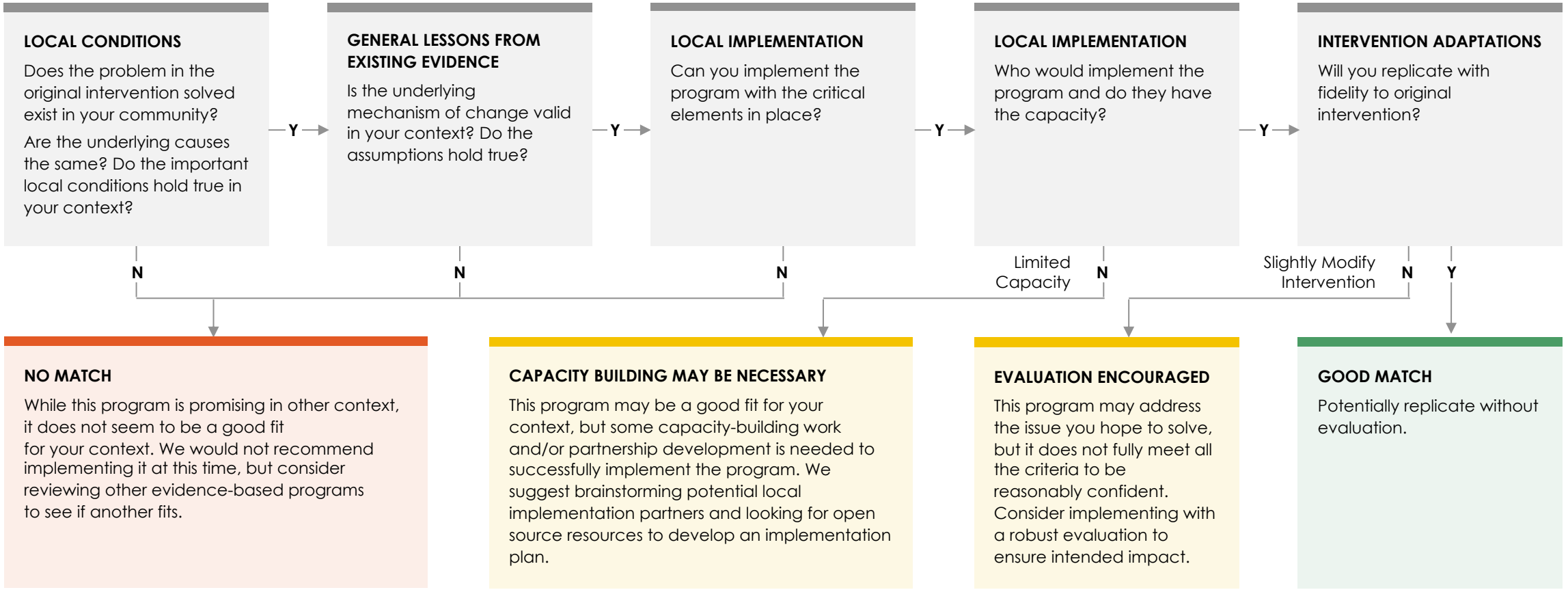
Key takeaways

- The generalizability framework presents a **systematic way** to assessing whether and how an evidence-based program might work in your context
- The framework reminds you: instead of focusing on whether the **location** is similar or **how many times** a program has been evaluated, focus on:
  - Whether the **needs and underlying conditions** are similar (steps 1 and 2)
  - What is the evidence base for the **underlying behavior change** (step 3)
  - Whether the program can be **implemented with fidelity** to the original program
- Assessing the relevance of evidence is a key step of an **evidence review**
- The generalizability framework can also be used to think about whether your program can generalize to other contexts!

Applying the Generalizability Framework

ESP WORKBOOK

The workbook contains more detailed guidance to walk you through the process of deciding to apply existing evidence.



References

- Bates, M.A. and Glennerster, R. (2017), The Generalizability Puzzle, *Stanford Social Innovation Review*, https://ssir.org/articles/entry/the_generalizability_puzzle
- Banerjee, A., Duflo, E., Glennerster, R., and Kothari, D. (2010), Improving immunisation coverage in rural India: Clustered randomised controlled evaluation of immunisation campaigns with and without incentives. *BMJ* (340). doi: https://doi.org/10.1136/bmj.c2220
- J-PAL evaluation summary: Improving Immunization Rates Through Regular Camps and Incentives in India

Further reading and resources

- Bates and Glennerster, 2017, "The Generalizability Puzzle," *Stanford Social Innovation Review* https://ssir.org/articles/entry/the_generalizability_puzzle
- Kremer and Glennerster, 2012, Chapter in *Handbook of Health Economics*
- J-PAL Evidence to Policy page http://www.povertyactionlab.org/evidence-to-policy/
- J-PAL Self-Guided Case Study on Applying the Generalizability Framework to Complex Health Care https://www.nationalcomplex.care/research-policy/resources/toolkits/case-study-generalizability-framework/

Appendix example:
Teaching at the Right Level

The New York Times

It's 'Alarming': Children Are Severely Behind in Reading

The fallout from the pandemic is just being felt. "We're in new territory," educators say. By Dana Goldstein

https://www.nytimes.com/2022/03/08/us/pandemic-schools-reading-crisis.html

You learn about an intriguing, effective program

Imagine you lead a school district in California where students are also not performing at grad level, and you want to know whether this program could be effective in your context

CRIME, VIOLENCE, & CONFLICT | EDUCATION | J-PAL NORTH AMERICA

Boosting Academic Performance through Individualized Tutoring in Chicago Public High Schools

Researchers: Roseanna Ander, Philip J. Cook, Kenneth Dodge, George Farkas, Roland Fryer, Jonathan Guryan, Jens Ludwig, Susan Mayer, Harold Pollack, Laurence Steinberg

Fieldwork by: J-PAL North America

Location: Illinois, United States of America

Sample: 2,147 male youths

Timeline: 2013 - 2015

Target group: Students; Urban population

Outcome of interest: Arrests and convictions; Student learning

Intervention type: Coaching and mentoring; Tailored instruction

AEA RCT registration number: AEARCTR-0000041

Data: openicpsri

Research papers:

The (Surprising) Efficacy of Academic and Behavioral Intervention with Disadvantaged Youth: Results from a Randomized Experiment,
Improving Academic Outcomes for Disadvantaged Students: Scaling up Individualized Tutorials,
The Economics of Scale-Up, Not Too Late: Improving Academic Outcomes among Adolescents

Individualized tutoring

Program:

J-PAL affiliates and coauthors partnered with Chicago Public Schools to study the impact of individualized math tutoring on academic outcomes for 9th and 10th grade male students

- Students were assigned to a **one-hour tutoring session every day as part of their regular class schedule**.
- **Tutors met with two students at a time** and divided instructional time evenly between **reviewing foundational skills**—targeting instruction—and **working on current topics** from students' regular math classes.

Results:

- Students who received tutoring learned an **extra one-to-two years' worth of math** beyond what their peers learned in an academic year. Tutoring raised participants' average national percentile rank on 9th and 10th grade math exams by more than 20 percent.

Guryan et al. 2021

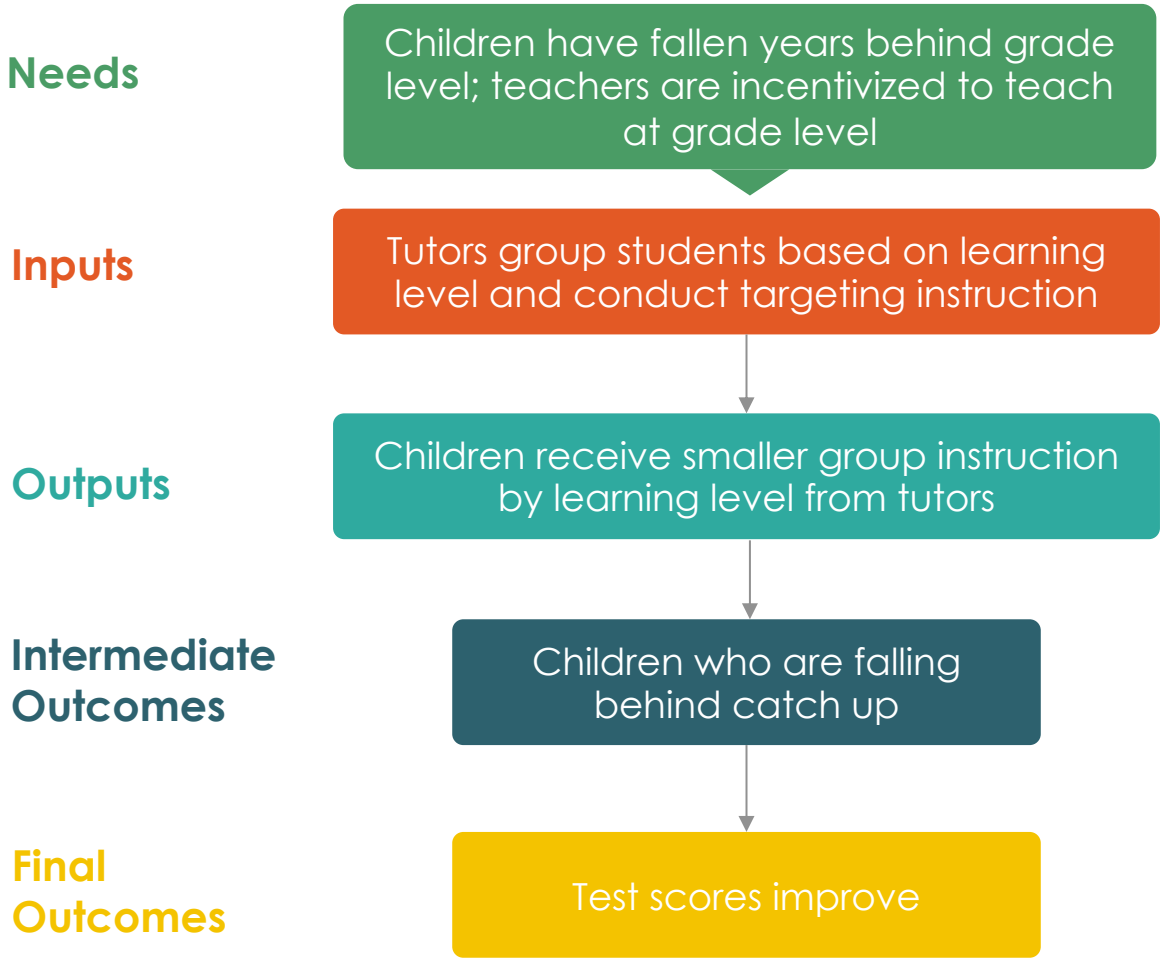
Individualized tutoring

Core principles of the program

- Dividing students into groups based on learning needs rather than age or grade
- Dedicating time to basic skills rather than focusing solely on the curriculum
- Regularly assessing student performance, rather than relying only on end-of-year examinations.

Generalizability Framework

Step 1.A: Understand the underlying **need** and map out **theory of change** for the evaluated program



Step 1.B: Articulate the **key conditions** that must have been in place for the program to have worked

What do you think needs to be true about the local conditions for this intervention to be effective?

Learning level

Option 1

All students are performing below grade level

Option 2

Some student perform at grade level while others fall behind

Teachers' incentives

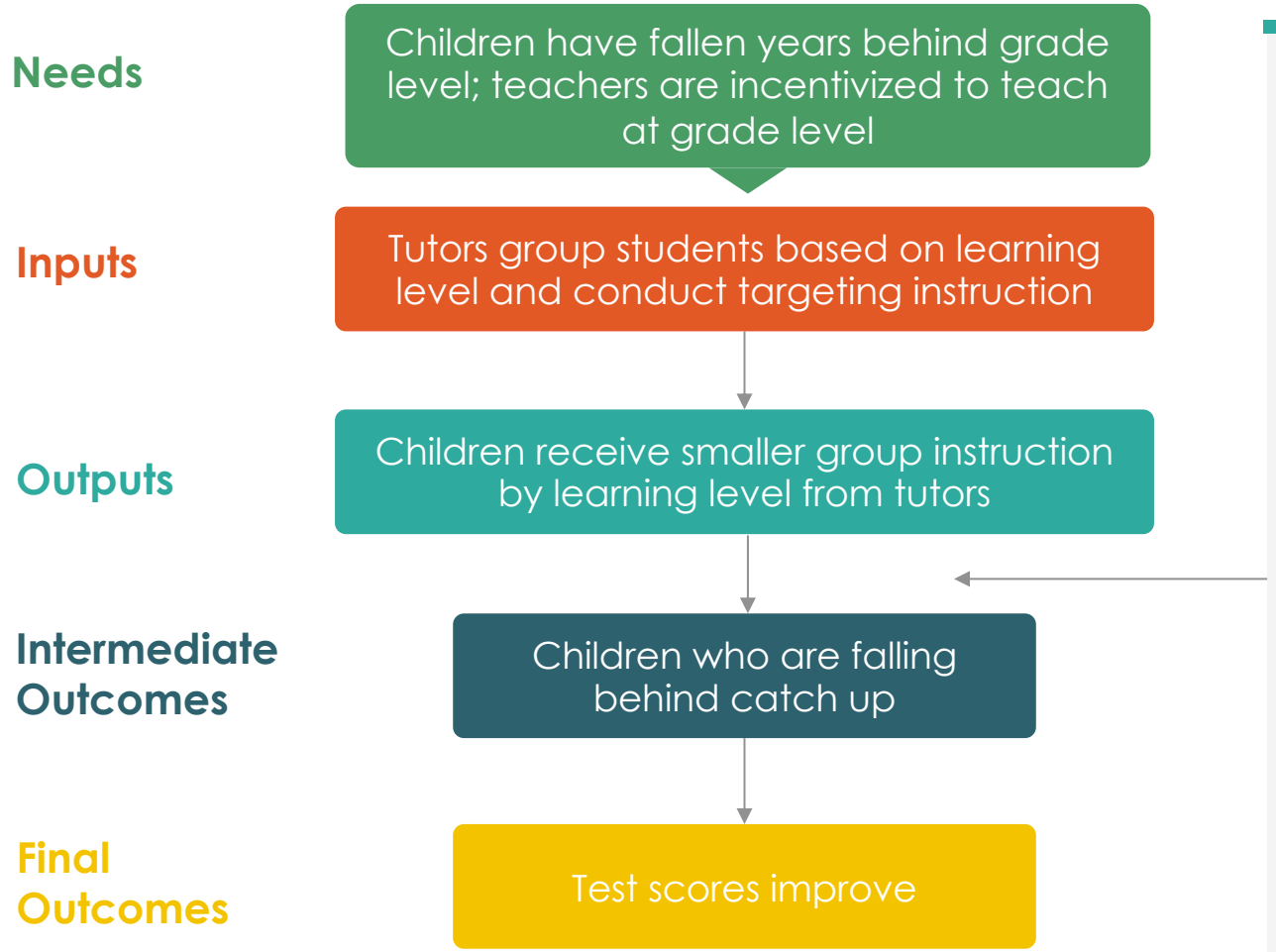
Option 1

Teachers are incentivized to teach at grade level

Option 2

Teachers are incentivized to teach so everyone can follow along

Step 1.A: Understand the underlying **need** and map out **theory of change** for the evaluated program



Key conditions

- There is variability of performance within classrooms
- Teachers are incentivized to teach at grade level
- The children who are falling behind grade level are **not facing supply challenges**, such as not being able to get to school or lacking essential school materials
- The children who are falling behind grade level are **not facing learning disabilities** that require more advanced intervention or special needs teachers

Step 2: Local conditions

New Context: California school district

Action: Find descriptive data to better understand whether the underlying need and the key conditions are also likely to be at play in your context

	Chicago (original context)	**California school district** (new context)
Academic performance and variance	Learning levels within each classroom are varied, and students have little recourse to learn basic skills if they have not mastered them in the foundational years.	
Teacher incentives	Teachers are incentivized to teach at grade level	

Generalizability Framework

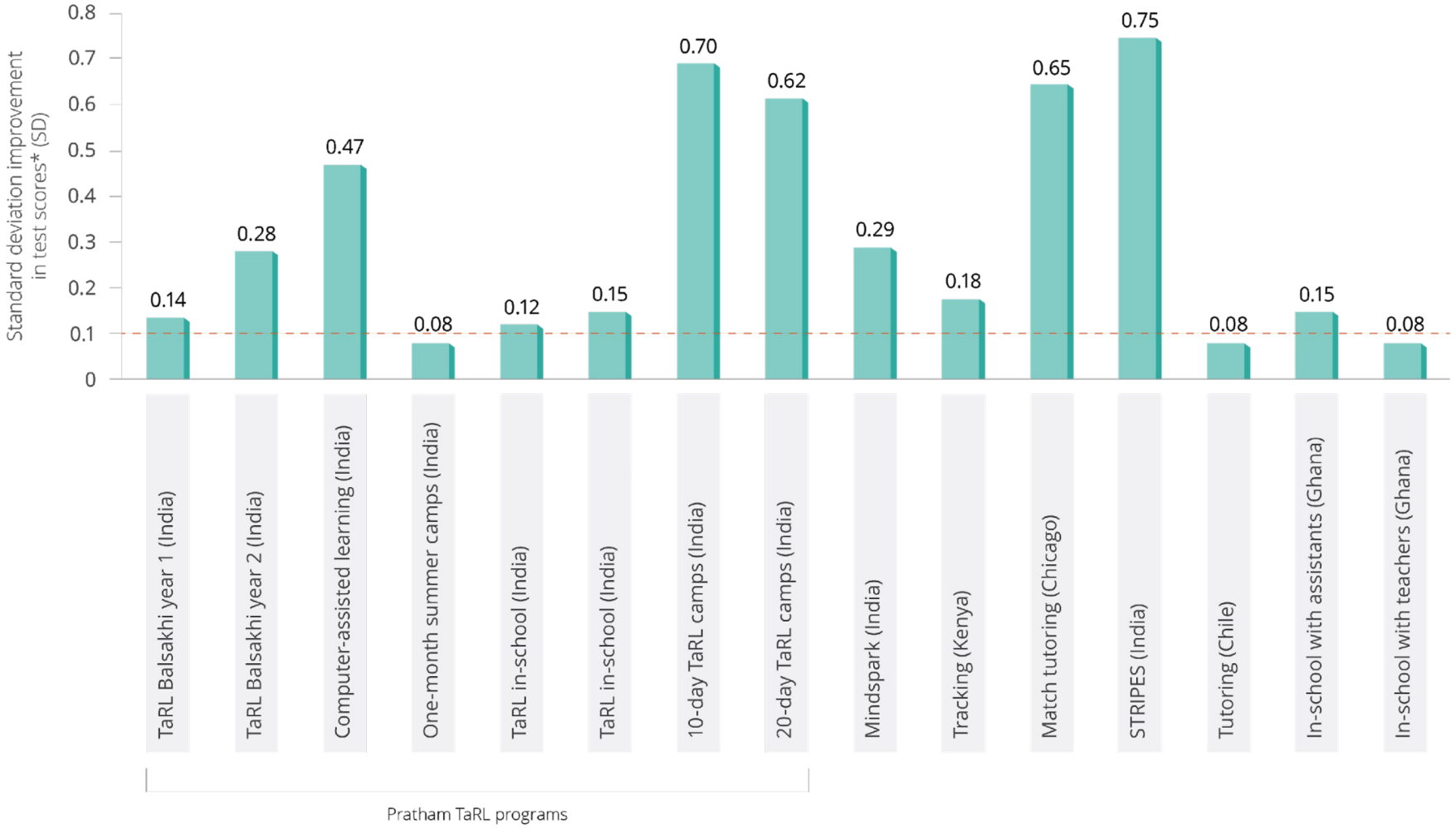
- Literacy and numeracy rates are below grade level
- Teachers face incentives to teach grade-level material, not catch-up material

Step 3: Generalized lessons on behavior

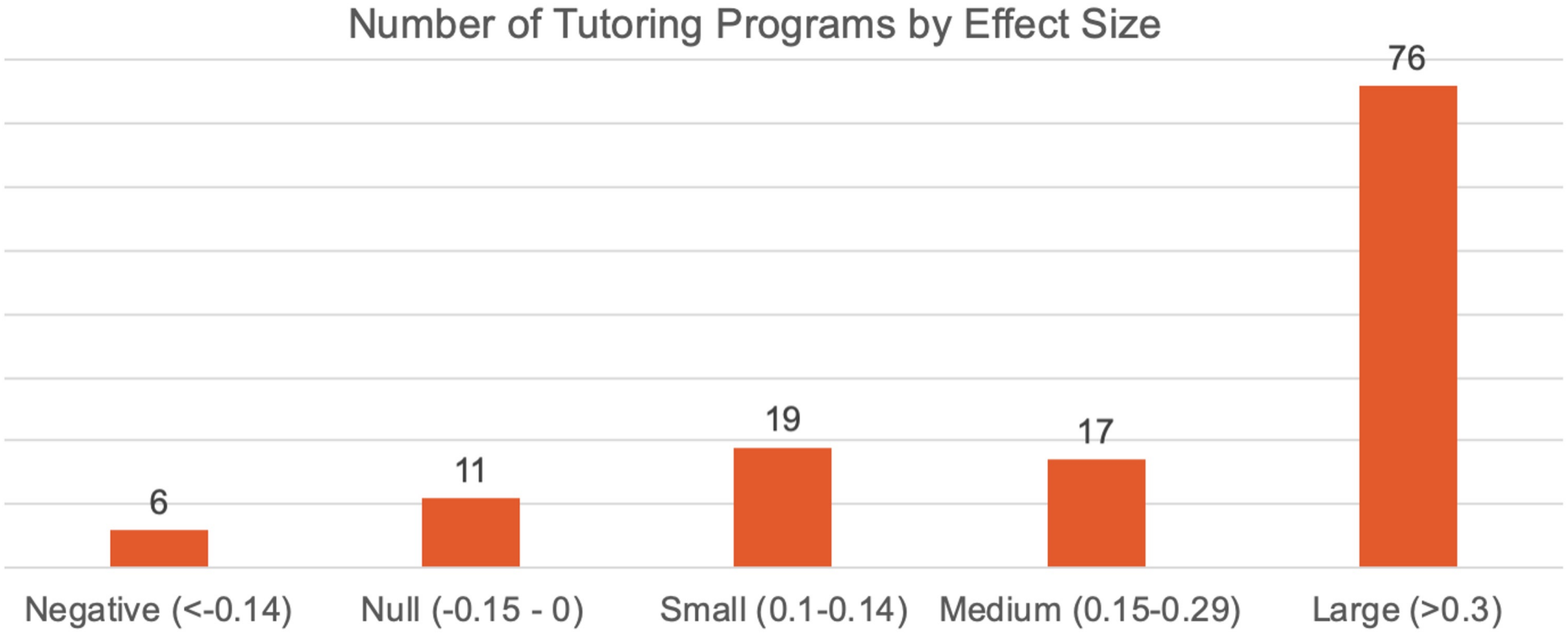
What would be the most relevant evidence to look for to inform the strength of the evidence base for the general behavior?

Option 1	**Option 2**	**Option 3**	**Option 4**
Tutoring	Targeted instruction?	Paying teachers based on students' performance?	Grading students

Tailored instruction: consistently positive impacts across contexts



Targeted instruction increases learning



For more, see: "The Transformative Potential of Tutoring for Pre K-12 Learning Outcomes"

Targeted instruction increases learning

Series of studies shows targeted instruction can work in a variety of contexts:

1. Balsakhi Assistant Program in India (Duflo et al 2007)
2. Read India Program (Banerjee et al 2007)
3. Computer Assisted Learning (Duflo et al 2007)
4. India Reading Camps (Banerjee et al 2010)
5. Extra Teacher Programme in Kenya (Duflo et al 2011)
6. Haryana Learning Enhancement Programme (Berry et al 2013)
7. TCAI Programme in Ghana (Duflo and Kiessel 2012)
8. Match Education and Youth Guidance in Chicago (Cook et al 2014)
9. Match Education of Chicago (Guryan et al 2021)
10. Saga Innovations in Chicago (Davis et al 2017)
11. Saga Education in Chicago (Guryan et al 2021)

For more, see: J-PAL Evidence Review. 2019. "Will Technology Transform Education for the Better?"

Step 4: Local implementation

Step 4:

Assess whether you or another organization can successfully implement the intervention with fidelity to the original model.

Adapt intervention to Californian school district context:

- Can you align tutoring with relevant school materials/curriculum?
- Can your tutors assess where students are at?
- Can you train tutors from the local community and provide them with ongoing support?
- Can you roll out program in a way that does not perpetuate learning differences by emphasizing who is falling behind

Generalizability Framework

TARGETED INSTRUCTION / TUTORING PROGRAM

- Students learn when material is at their level

LOCAL CONDITIONS

- Literacy and numeracy rates are below grade level
- Teachers face incentives to teach grade-level material, not catch-up material

GENERALIZED LESSONS ON BEHAVIOR

LOCAL IMPLEMENTATION

- Teachers/tutors train in catch-up program
- Time is devoted to catch-up program
- Students attend catch-up classes targeted to their learning level

LEARNING OUTCOMES IMPROVE

TEACHING AT THE RIGHT LEVEL/TUTORING

?

IMPROVED TEST SCORES

- Students learn when material is at their level

TARGETED INSTRUCTION / TUTORING PROGRAM

LOCAL CONDITIONS

- Literacy and numeracy rates are below grade level
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GENERALIZED LESSONS ON BEHAVIOR

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LEARNING OUTCOMES IMPROVE

J-PAL | THE GENERALIZABILITY FRAMEWORK

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